which was very near the sea. The suggestion made to meet that difficulty was the following:—

When the Pamburivaikal reached near the sea, it did not directly flow into it, but took a curve and a round-about turn and discharged itself into the sea near a place covered with rocks. By taking such a curved course there was a retardation in the rate of flow of water and hence near the sea the Pamburivaikal exhibited a level appearance. If a *kal* from the Pamburivaikal near the above curve was cut leading to the sea, the velocity of the water would be accelerated and the sandy deposits in those places would be washed away into the sea in the course of two or three years. When that was done, the surplus water in the Pathara *ela* could flow easily through Pamburivaikal.

(4) The Pamburivaikal was gradually getting silted up and the banks were being washed away year after year. The cultivation was affected by the breaches that occurred in the rainy season. The Thiruvithancode extension channel was connected with the Pamburivaikal and the channel water was being led through the Pamburivaikal and utilised for purposes of cultivation. The Pamburivaikal should be regarded as an Irrigation channel and maintained accordingly. The banks of the Pamburivaikal were in a neglected condition. The Government had previously decided to convert the banks of the Pamburivaikal into a road and certain lands had been acquired on payment of compensation. Such lands should be utilised for the purpose for which they were acquired. By spending small amounts year after year, portions of the banks could be converted into roads and, in course of time, the whole extent of the banks would be converted into a road. That would also be highly useful in the interests of the Pamburivaikal.

The Member, in conclusion, added that it was the duty of the Government to save the ryots from the difficulties under which they were placed on account of water-logging.

Dewan's reply.—The representations of the Member will be referred to the Chief Engineer and the Dewan Peishkar for remarks.

72. Improvement of the Tovala Channel.

Mr. A. Suriyanarayana Pillai, B. A. (Member, T. I. C., Nagercoil) said that the supply of water in the Tovala Channel was very defective, that the major portion of the cultivated lands lay between the 26th and 29th miles of the Main Channel and under Nellappara and Maruthvamalai branches and that, though the estimated depth of water was 5 feet in the Main Channel and 3 feet in the branches, the actual depth was only half the estimated quantity. In the Nellappara branch, not more than 2½ feet of water was allowed ever since the channel was opened and only one foot of water was allowed at the most in the Maruthvamalai branch. Before the introduction of Kodayar water, the major portion of the lands in the Nellappara branch was under cholam, ragi, etc., irrigated with well water. Since the introduction of Kodayar water, the lands were cultivated with paddy. The supply of water was, however, insufficient and there was no standing water for paddy cultivation. Breaches constantly occurred in the channels and the ryots were deprived of water for a week or two continuously. The consequence was that the ryots were not only unable to get their old crop of cholam, etc., but were also forced to pay an extra tax, even though they got only a less yield. The owners of lands lying at the tail ends of each block suffered more than others. The Revenue officers insisted upon realising the extra tax, whether the lands got sufficient water or not. Formerly, the Revenue Department used to take some interest in the matter and weekly bulletins used to be issued showing the depth of water to be allowed every day in the channels to see whether sufficient water was allowed in the channels. That was a sort of check over the P. W. D. subordinates. At present, however, the Revenue department did not seem to take any care about the issue of, and adherence to, the bulletins by the P. W. D. officers, and the low-paid subordinates of the P. W. D. had their own way in distributing water.

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The Member referred to the defective construction of the Channel and said that the full supply level of 5 ft. was never maintained. The highest depth of water left in the channel was 4½ feet at the head-work, which was 4 feet at Seethappal, 3¼ feet at Tovala and 2½ feet at the tail end. Even though the full depth of 5 ft was allowed, there was only 120 c. ft. per second of water against the estimated 180 c. ft per second at the head-work which gave only 90 c. ft per second at the 20th mile where the actual irrigation commenced. The proportion of the area actually converted to the originally estimated area was only 67 per cent. The defects of the channel were, in the Member's opinion, the following:—

The first 5 miles from the head-works to Thadavayar passed through a rocky country full of curves and that gave rise to a lot of heading up of the water. The water was flowing with less velocity than that estimated. Even the cutting of the first mile was too narrow to admit the full quantity estimated for. The Member proposed that the bed face of the above portion of the channel should be increased from 1½ to 2 ft. per mile. The difference of about 10 ft. in level between the inlet and the exit in the syphon at Thadavayar could be reduced to 7 or 8 ft to allow the increased bed-fall. The water stagnated at the 7th, 8th and 9th miles of the Channel where there was no velocity. That could be rectified by raising the level of the channel by 1 foot or 2 ft. at the lower end of the syphon and raising the bed level of the channel by building a number of cross bars at each furlong to allow the increased bed-fall. By adopting those two suggestions the bed-fall of the channel could be increased from the head-work to the 9th mile which would give increased velocity and greater discharge of water.

Another defect of the channel was that its embankments throughout were leaky and at some places dangerous. The Member suggested that the embankments might, therefore, be lined with bricks as in the case of the left Bank channel.

Regarding the distribution of water, the Member said that there was no fixity in the system, that, though the channels were supposed to run for 8 months in the year, the sluices along the channels were opened by turns every week and lands did not get water for 2 or 3 days every week and that the frequent transfers of officers were the root cause of the constant changes in the method of distributing water. The new officers took some time before they acquainted themselves with the needs of the country and the sort of work which was demanded of them. Instead of frequent transfers of *officers*, it would be better if maistries and watchers were constantly transferred so as to avoid corruption. It would also be a boon if the Division officer, Sub-Division officer and the Section officers lived in places accessible to all people, or, if they made it a rule to attend their offices daily.

Lastly, the Member said that there were two roads, namely Eathankaud and Anjugramom roads, which passed through the lands irrigated by the channel. The lands on both sides of the roads were dry before the opening of the channel and the roads were in a fairly good condition. After the opening of the channel, the roads became moist and slushy and, therefore, useless for traffic. The roads should be raised and metalled for bringing manure, paddy, etc. The channel was lying ½ a mile to 2 miles away from the road, so that the ryots found it difficult to convey manure, paddy etc., from, and to, their lands, for they had to carry them on head loads. The late Mr. Minchin proposed a number of roads, at least 2 in every mile between the existing road and the channel across the newly converted lands. The Government should not hesitate to improve the existing roads and to make new roads, for they would get more revenue from the wet lands in the locality. The Member, therefore, prayed that the above works might be carried out by the Government.

Dewan's reply.—Noted.

73. Improvement of the means of communication in the northern *pakuthis* of the Chirayinkil taluk.

Mr. P. M. Narayana Kurup (Member, Chirayinkil taluk) said that, owing to the absence of facilities for communication in the interior parts of the taluk, there were extensive areas lying unregistered in such *pakuthis* as Madavur and Pallikka

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